

**Tinne De Laet**

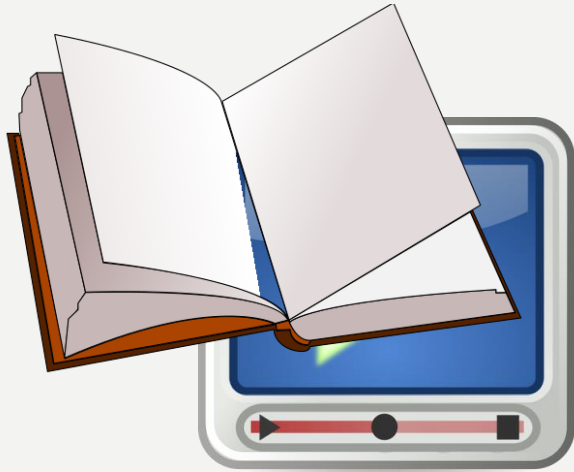
*KU Leuven,  
Belgium*

**Matt Smith**

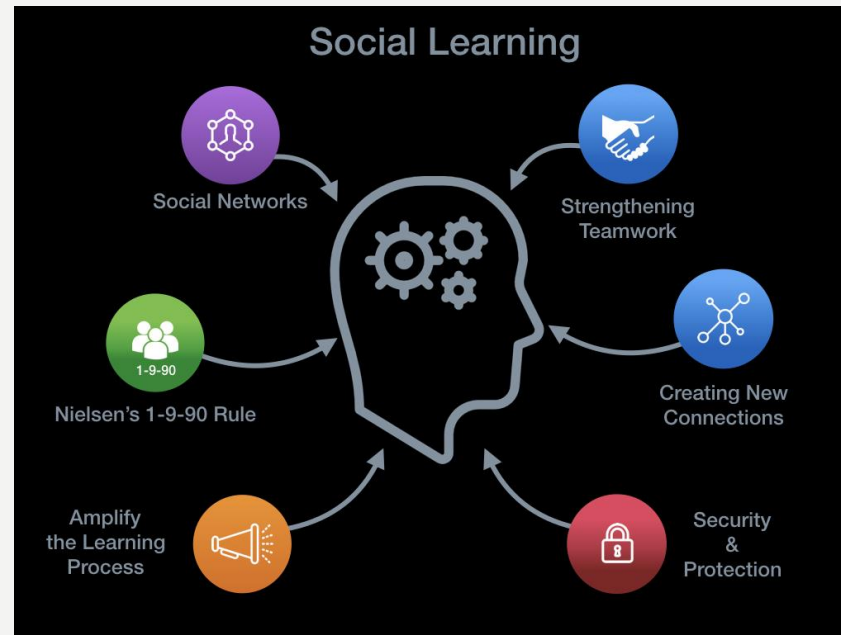
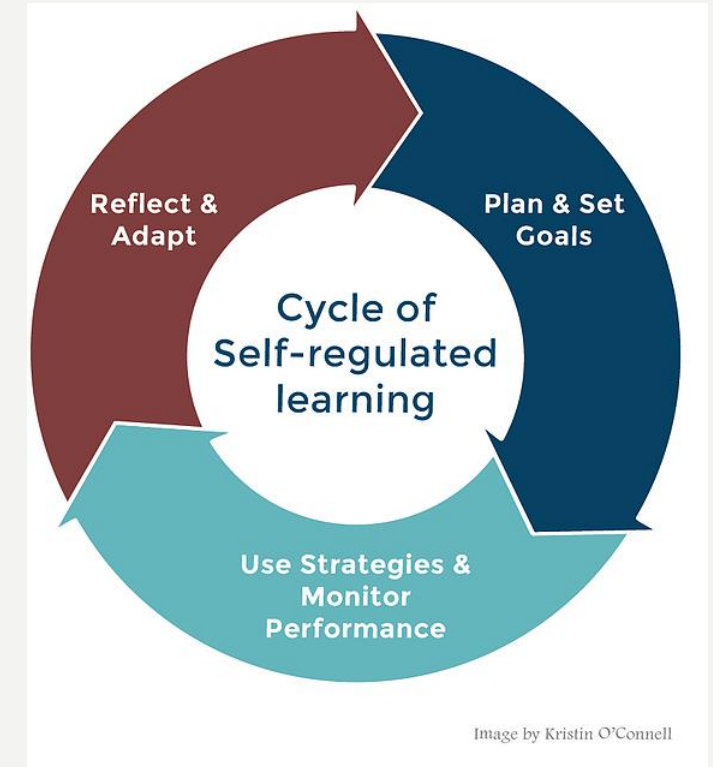
*University of  
Wolverhampton, UK*

# INTERACTIVE COURSEWARE TO CONNECT DISCUSSION TO COURSE MATERIAL: SO WHAT?

# NEED?



Course material



From: <https://stevenewolf.com/social-learning-gamification/>

## Asynchronous



## Social Learning?

# PLATFORM FOR NEXT-GENERATION TEXTBOOKS



- Nextbook platform ([www.nextbook.be](http://www.nextbook.be))
    - “Next-generation” textbooks
    - Interactivity:
      - Content
      - Other learners
      - Teachers
- } Social learning environment

## demonstration

### Studying doesn't need to be hard.

This is how we're making it easier for everyone.

1

**Quality texts from around the world**

The Nextbook library exclusively consists of books that are used at colleges and universities. Easily access them where you want, when you want.

2

**Create and organise notes with ease**

Take notes and highlight what's important with the click of a button. Even better: Nextbook can automatically summarise your textbook based on your studying behaviour — saving you time when you need it most.

3

**Integrated Q&A**

The best way to learn is by teaching others. Nextbook allows you to chat with your classmates from within your textbook, so that you get the help you need, as quickly as possible.

4

**Analyse learning behaviour**

Nextbook enables teachers to better understand their students. Our easy-to-use dashboards offer insight without effort.

Coming Soon



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# AFFORDANCES & THEORETICAL UNDERPINNING

## AFFORDANCES

- Collaboration
- Creativity
- Self-directed learning
- Personalized resources

## THEORETICAL UNDERPINNING

- dialogic practice
- heutagogy (self-determined learning)
- student empowerment
- nurturing agency in students

# CASE STUDY - CONTEXT



big classroom - theory

Flipped teaching

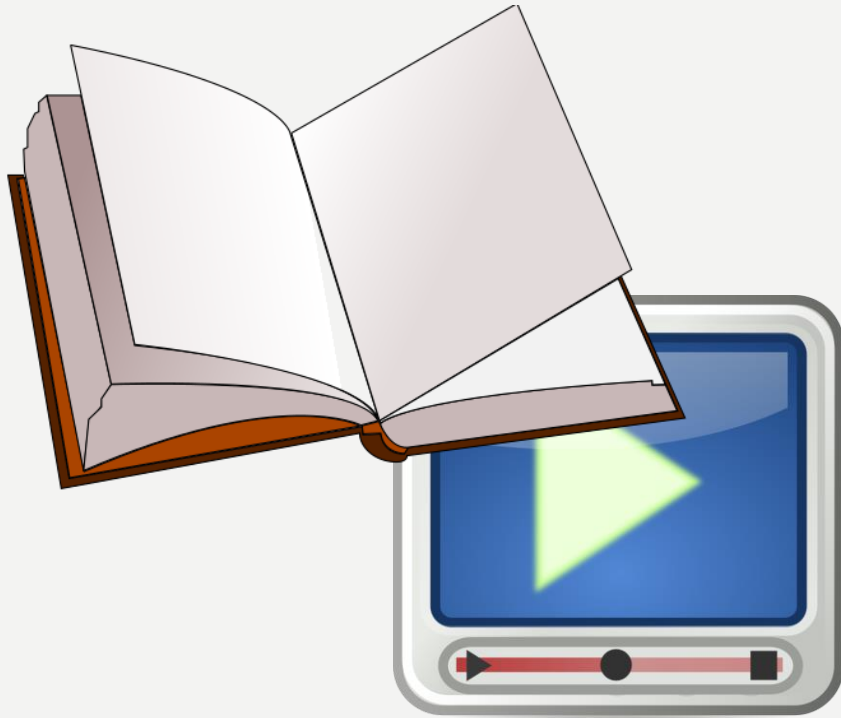


exercise sessions



# CASE STUDY - CONTEXT

## Flipped teaching



Interactive lecture  
with Q&A and discussions



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# CASE STUDY - ISSUE

<input type="checkbox"/>	Date ▴	Thread	Author	Status	Tags	Unread Posts	Unread Replies To Me	Total Posts
<input type="checkbox"/>	14/01/21 16:53	Quick Questions	Duygu Sezen Islakoglu	Published		0	0	3
<input type="checkbox"/>	14/01/21 10:53	Solution sketch to exam 2015 ProbLog question	Luc De Raedt	Published	Answered in Q&A	0	0	1
<input type="checkbox"/>	14/01/21 00:38	d-seperation question	Evangelia Balini	Published	Answered in Q&A	0	0	2
<input type="checkbox"/>	13/01/21 16:01	Miscellaneous questions	Ioannis Ioannidis Karatsivoulis	Published	Answered in Q&A	0	0	2
<input type="checkbox"/>	13/01/21 15:58	Gibbs Sampling	Milos Dragojevic	Published	Answered in Q&A	0	0	2
<input type="checkbox"/>	13/01/21 15:51	Exam 2015 2nd Question Part B	Umut Caliskan	Published	Answered in Q&A	0	0	2
<input type="checkbox"/>	13/01/21 15:45	Exam Question Markov Networks: Contagious Disease	Rafaël Michiels	Published	Answered in Q&A	0	0	5
<input type="checkbox"/>	13/01/21 15:41	Unreliable evidence	Rafaël Michiels	Published		0	0	2
<input type="checkbox"/>	13/01/21 15:15	Independence in belief nets	Nupur Jhankar	Published	Answered in Q&A	0	0	1
<input type="checkbox"/>	13/01/21 14:10	Problog Inference Formula Compilation in Circuit	Milos Dragojevic	Published	Answered in Q&A	0	0	1
<input type="checkbox"/>	13/01/21 13:09	Hidden Markov Model- exercise session 3 exercise 1	Ioannis Ioannidis Karatsivoulis	Published	Answered in Q&A	0	0	1

Students' questions and discussions on the “discussion platform” are not connected to the course material

Result:

- No “overview” of the questions and answers (students and teachers)
- Students do not spot interesting Q&A or discussion when they are studying the content
- Students ask similar questions multiple times

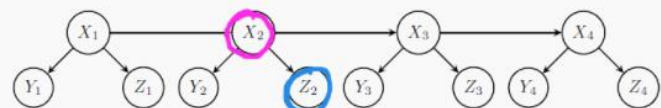
# CASE STUDY – ASYNCHRONOUS DISCUSSION IN NEXTBOOK

## Question 9

Select this text to ask a question regarding this exercise.

### Written solution

9. (6pts) Sampling: Consider the following Bayesian network.



- (a) (4pts) Assume you want to obtain, as efficient as possible, ONE sample for each of the queries below using **ancestral sampling**, assuming you have a list of random and independent samples from a uniform distribution between 0 and 1 available.
- Indicate for each of the queries a) if you would need rejection or not, b) list the (un)conditional probabilities available in the network that have to be sampled from, in the order they have to be sampled from, and c) order the queries according to efficiency (assuming each (un)conditional probability of the network is equally efficient to sample from).

query	rejection needed: Yes/No	ordered list of (un)conditional network probabilities	computational efficiency (1=most efficient, 3=least efficient)
$p(X_1)$	no	$p(X_1)$	1
$p(X_2 X_1)$	no	$p(X_2 X_1)$	1

For the last exercise: shouldn't the expression be normalised? Because if you want to sample  $X_4$  in practice you need to normalise it as well.

Conor O'Rourke

(already a reply, but will still handle the question in the Q&A) For sampling, the normalization does not matter as it is a `normalization_constant`, independent of the variable we want to sample. You can also check this in the lecture notes for rejection sampling for instance, there we also need to know the target distribution up to a normalization constant.

Jij

Antwo

# CASE STUDY FINDINGS

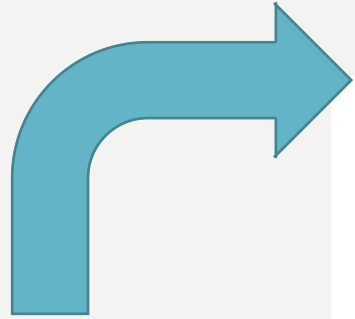
## POSITIVE

- Integration with LMS
- Students see questions and discussion already when viewing material
- Fewer duplicate questions
- As teacher: easier to get overview of difficult parts to be discussed in interactive session or points for improvement of material

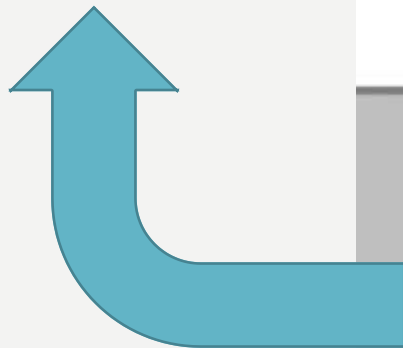
## TO BE IMPROVED

- Which questions are new?
- Analytics: how/when are students using the platform

# TOWARDS USEFUL ANALYTICS



Instructional  
Design



meaningful  
learning  
traces

answer  
pedagogical  
questions



Basic asset.  
**Raw material**  
to be transformed  
into  
analytical insights.

Process to add  
intelligence  
to data using  
**algorithms.**

**Critical step** towards  
achieving the purpose:  
Improving **students'**  
**performance**

Learning Analytics



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# OPPORTUNITY FOR YOU

Use Nextbook for free for your pedagogical use cases and on your courses!

Interested?

- [Matt.Smith@wlv.ac.uk](mailto:Matt.Smith@wlv.ac.uk)
- [Tinne.DeLaet@kuleuven.be](mailto:Tinne.DeLaet@kuleuven.be)

Or leave your contact information in the chat!

# THANKS!

# QUESTIONS?



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